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1892-13320

July 21, 1892

51/16

(2 SHEETS)
SHEET 1

FIG.1.

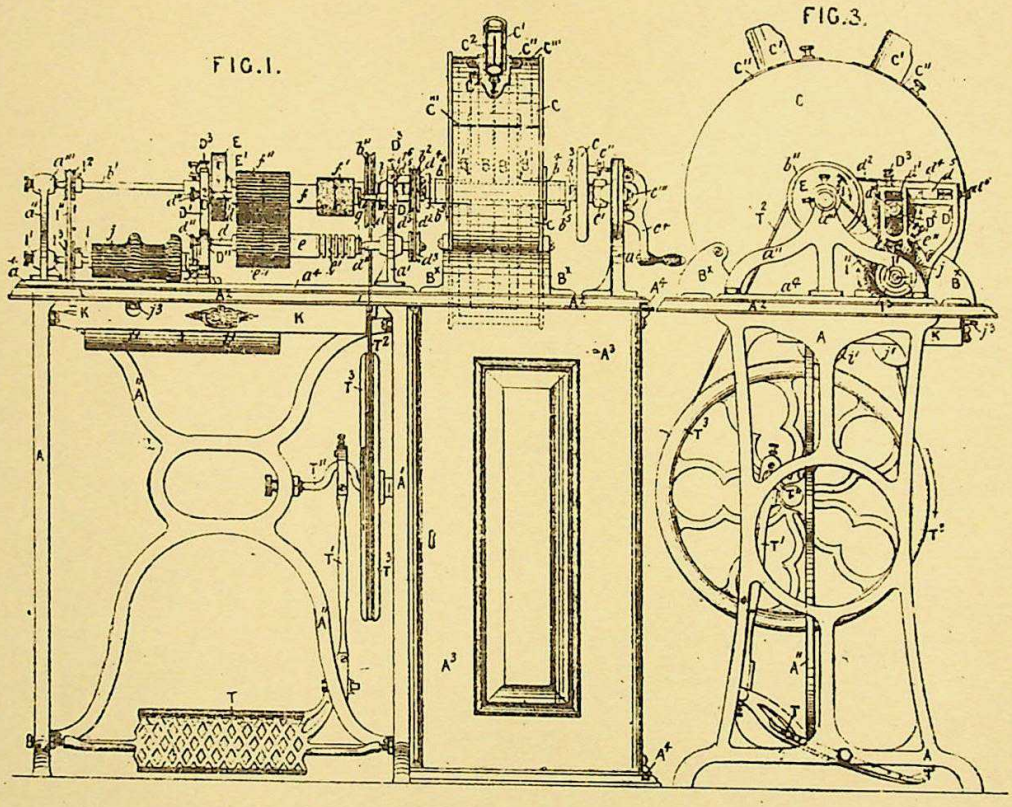


FIG.3.

FIG.2.

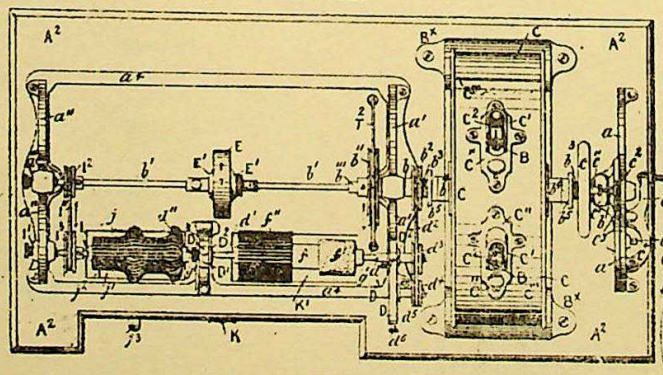
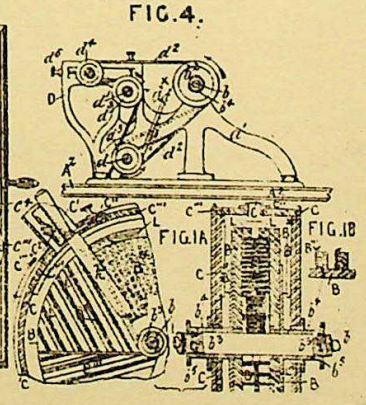


FIG.4.



A.D. 1892. JULY 21. Nº 13,320.
COWAN'S COMPLETE SPECIFICATION.

51. GRINDING AND POLISHING,
Metal,
Cutlery Scourers.

1892-13320

12 SHEETS
SHEET 2.

FIG.11.

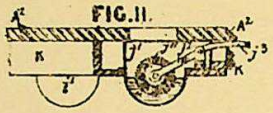


FIG.6.

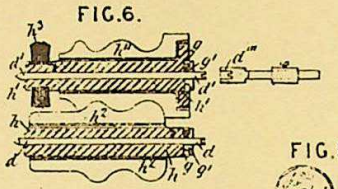


FIG.7.

FIG.12.

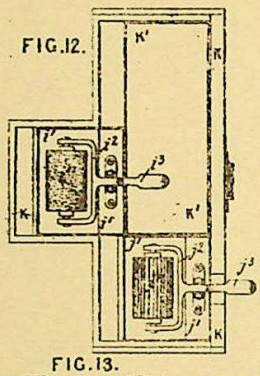


FIG.5

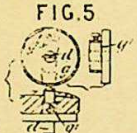


FIG.8.

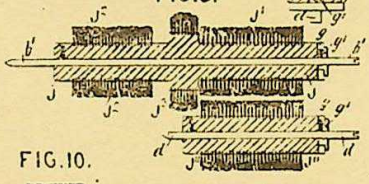


FIG.9.

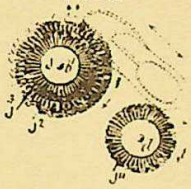


FIG.10.

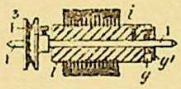


FIG.13.

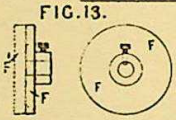


FIG.17.

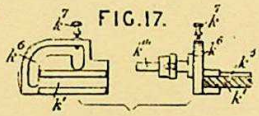


FIG.14.

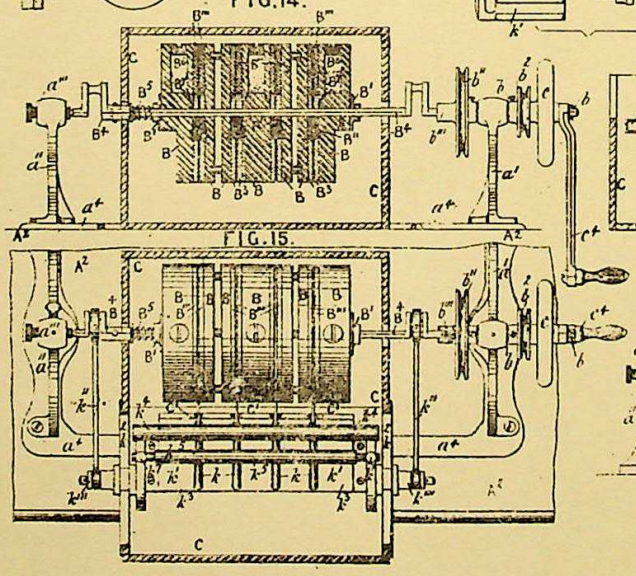


FIG.16.

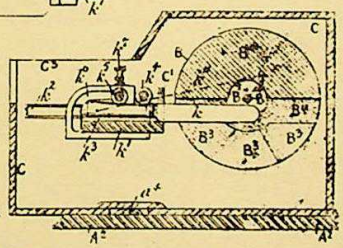
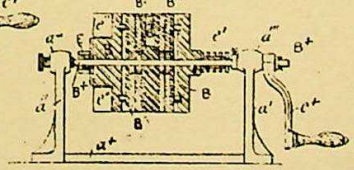


FIG.15.

FIG.18.



A.D. 1892, June 21. N° 13,320.
COWAN'S Complete Specification.

51. Grinding & Polishing.
Cutlery Scourers.

N° 13,320 A.D. 1892

Date of Application, 21st July, 1892—Accepted, 15th Oct., 1892

COMPLETE SPECIFICATION.

Improvements in and relating to Mechanism for Cleaning and Sharpening Knives, Cleaning and Polishing Forks, Spoons, Plate, Boots and Shoes, and like purposes.

I, JOHN COWAN, of 26 Allison Street, Crosshill, Lanarkshire, Joiner, do hereby declare the nature of my invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement in writing, reference being had to the accompanying drawings, that is to say :—

This invention has reference to and comprises a new or improved construction of machine, or arrangement and combination of mechanism for the cleaning and sharpening of knives, and for the cleaning and polishing of forks, spoons, and such like plate, and also for the cleaning, blacking, and polishing of boots and shoes, and for such like purposes, and which may be done all in and by one combined motive machine driven by hand, foot or motive power, but with different combinations of mechanism suitable with slight manipulation for the different purposes.

And in order that my said invention and the manner of performing or carrying the same into effect or practice may be properly understood, I have hereunto appended two explanatory sheets of drawings in which the same reference letters are used to indicate corresponding parts in all the figures where shown.

Figure 1 on Sheet 1 is a front elevation and Figure 2 a corresponding plan view of a complete machine as constructed in accordance with one arrangement of my improvements having the spindles with the cleaning and polishing fittings for plate as applied thereto.

Figure 3 is an end view of the machine corresponding to Figure 1. while

Figure 4 is a detached end view of the intermediate bearing bracket a^1 for carrying the ends of the removable spindles, looking from the opposite side to that in Figure 3.

Figures 5 to 13 on Sheet 2 represent detached views of modified constructions of the brushes and detail mechanism and will be hereinafter referred to.

Figure 14 on Sheet 2 is a sectional side elevation; Figure 15 a plan view; Figure 16 a transverse section and Figure 17 a detail view of an improved construction and arrangement of knife cleaning mechanism, while

Figure 18 is a sectional elevation of a portable form of knife and fork or plate cleaning and polishing mechanism.

Referring first to the figures on Sheet 1 of these drawings.—According to this self-contained arrangement, capable of being driven much like a turning lathe, by a treadle T and connecting rod T^1 and crank shaft T^{11}, the improved machine consists all as follows.—Of two main end frames or standards A A^1 bound together, preferably by a centre open metal frame A^{11} to carry the treadle T and crank shaft T^{11} and with flat table A^2 preferably of wood on top carrying the journal bearing headstocks and brackets of the machine or mechanism screwed to it by basement flanges or snugs. The main headstock consists of three vertical journal bearing brackets a, a^1, a^{11}, two end brackets a a^{11} and one intermediate a^1 which may be bolted separately by basement flanges to the flat table A^2, or some of them may be cast or secured on the same flange metal sole a^4. These three bearing headstocks a, a^1, a^{11}, carry the main rotating central shaft b, b^1, six inches or so above the table plate A^2, preferably in two parts coupled together at b^{111} and between the first and second preferably on the right hand side the central driving spindle b is mounted, with a pulley b^{11} secured on it driven by a band T^2 from the driving pulley T^3 on the crank treadle shaft T^{11} with another smaller pulley b^2 on the same spindle b at its one side which drives the other spindles of the machine

as hereinafter described. The comtinuation b^1 to the left of this main driving shaft b, is merely secured by a slip coupling at b^{111} on the outside of the central bearing bracket a^1 having its other end carried in a screw bearing centre or bush a^{111}, in the extreme left hand supporting bracket a^{11}. The main driving shaft b between the first and second bearing brackets a, a^1, has a hollow shaft b^3 mounted to rotate loose on it, screwed at its ends, and carries two driving discs B^1, B^1, each by deep eyes and feathers and grooves and passing out through bush bearings or eyes b^4 in a nearly circular ordinary fixed wood furbator or knife cleaning case C. This case C, enclosing the whole of the knife cleaning arrangement of mechanism, consists of two wood discs B, B, secured to the metal driving discs B^1 B^1 and working with their faces up towards each other in the centre of the case C in an ordinary manner. These wood discs B, as shown in face and edge section in Figures 1^A and 1^B on Sheet 1 have secured on their adjacent faces, a segment of wood L at their outer periphery, of a third or a fourth or so of a circle, leaving always room between them for the blades of the knives to pass in through one, two, three, or more holding radial sockets C^1 screwed by flanges at C^{11} to a portable part C^{111} of the upper circumference of the fixed outer case C. Inside of these wood segments, stiff hair or other brushes B^{11} are inserted in the face of the wooden discs B, projecting, so as to rub against each other and clean the blades of the knives k between them inserted through the holders C^1, as dotted-in in Figure 1, and more particularly in the section Figure 1^A. The other surface of the wood discs B is divided into two, three, four, or more sections and fitted with laths of wood L^1 as seen in Figures 1^A and 1^B, having secured on them several layers of chamois or buff leather B^{111} fully deeper than the bristles of the brushes B^{11} the laths being screwed parallel to each other in each section, so that the chamois leather B^{111} on each lath projects out and acts at an angle and not radially on the blades of the knives, and bends over their respective laths L^1 while cleaning the knives k giving elasticity in their rubbing action without liability to being cut by the knives. Each socket C^1 for holding the handles of the knives is formed of a U shape in section, with an oscillating and adjustable bearing plate C^2 within this, covered with india-rubber on the front or close side, so as not to injure the ivory or ornamental handles of the knives inserted in the socket. The open side of each socket and slit for inserting the knives may be fitted with a movable screwed bolster also fitted with rubber on its inner face, so as to bear up against the back of the handle of the knife and hold it at any angle desired in the socket C^1, and thus enable the machine to clean knives of longer lengths than the mere radius of the discs. The outer segment of the case C on which these sockets C^1 are screwed is portably secured at $B^\times$ to the lower fixed part of the case, so as to be removed from time to time when cleaning the brushes or inserting new polishing material; and when preferred a door may also be formed in the side or lower circumferential part of the case C for removing the material. This furbator and case C rests on a prolongation of the wood table or platform A^2, between the first and second standards a a^1, and has fitted under it a press A^3 for holding the different brushes, spindles, and tools, or utensils to be cleaned. The hollow driving spindle b^3 of these knife cleaning and polishing discs may be screwed for a short distance beyond the hollow ends of the bearings or eyes b^4 and have hand screw wheels b^5 mounted on these screws, so that when these were turned in one direction they would bring the cleaning surfaces of the brushes and discs inside the case C closer towards each other, or *vice versa* when turned in the other direction to clean different sizes and thicknesses of knives. Between the end of the hollow spindle b^3 and the bearing end of the centre driving spindle b a hand wheel c is mounted, connected to the centre shaft b by a screw coupling c^1 direct, or it might be by a screw pin and socket c^{11} and hollow eyed driving wheel c^2 actuated by a large enclosed driving wheel at c^3 on a stud c^{111} by a crank hand lever c^4 mounted on it when driven by hand instead of by the treadle mechanism T and its pulley b^{11}.

For the sharpening of knives an emery wheel E, with driving, tightening discs E^1, on each side, and bored eye could be portably mounted on the inner coupling

part b^1 of the centre driving shaft by merely removing the coupled continuation b^1 of this shaft b, b^1, as more particularly shown in Figure 2.

For the cleaning and polishing of forks and spoons, and the backs of knives, two additional horizontal spindles d, d^1, would be mounted over each other in front of the central shaft. These spindles d, d^1, would be carried in centre or bush bearings in a bracket frame D, preferably projecting up and forward from the bracket a^1, and at the other or left hand end carried by a portable vertical standard D^1. The lower spindle d would be mounted in stationary bearings or centres in the brackets D D^{11}, but the upper spindle d^1 would be mounted in movable or adjustable centres or bearings at D^2 working in vertical slotted guides in the upper part of the said brackets D, D^1, and which would be raised and lowered by hand screws D^3 passed up through the secured but removable tops of the slides, so as to separate these spindles d, d^1, more or less with the cleaning portable brushes or rollers on them. These spindles d, d^1, would be easily shipped or unshipped by making their left hand bearing centres d^{11} screw out and in to the bushes or standards D^1, D^{11}, and be removed from their driving pulley ends at d^3 by slotted and pin couplings at d^{111}. These two spindles d d^1 are driven by an open band d^2 preferably passed over the before mentioned grooved driving pulley b^2 on the centre shaft b and round or under and over grooved pulleys d^3 on the lower and upper spindles d d^1 and passed over a tightening guide pulley d^4 mounted on a stud bush d^5 shifted out and in by a screw d^6 in horizontal slide guides in the end bracket D next the side of the knife cleaning machine, this shifting stud pulley d^4 tightening the band to compensate for the raising and lowering of the upper spindle d^1 and its pulley d^3, as seen particularly in Figure 4. For cleaning forks a hollow wooden cylinder e would be portably mounted on the lower spindle d with four or other number of discs e^1 of buff leather, and smaller washers or discs between them, at the one end, say the right hand end of the cylinder e, so as to enter between and clean the prongs of the forks when revolving; and the cylinder f of the upper spindle d^1 would be mounted with a revolving brush f^1 at this end over the disc part e^1 of the lower roller e. These hollow cylinders e f would be formed with bushes or recesses at g at the one end to take on to projections on couplings or discs g^1 on their driving spindles as seen more particularly in detail detached enlarged end and side views in Figures 5 and 6, on Sheet 2. The centre part of these hollow cylinders e, f, would have a circumferential covering of plain buff or chamois leather mounted on them for cleaning the handles and sides of the forks, while their other or left hand ends would have radial layers of chamois leather on edge as shown at e^{11} f^{11} for cleaning the sides and edges of the forks. When the hollow or bowl parts of spoons are to be cleaned the cylinders e, f, would be removed and corresponding hollow wooden cylinders h, h^1, would be mounted on both the lower and upper spindles d, d^1, as shown in sectional elevation and end views in Figures 6 and 7 Sheet 2 with annular corrugated or fluted surfaces of radial layers of chamois leather h^2, h^{11}, or of hair bristles or a combination of these, the corrugations being of various sizes to suit the mouths of bowl parts of different sizes of spoons, the raised corrugations of the one cylinder working into the hollow corrugations of the other. The chamois leather may be mounted in single or double longitudinal corrugated strips sewn on their inner edges as close together as possible to leather or strong cloth which would be secured round the circumference of the cylinders to act as the cleaning surfaces. The other end of the lower cylinder h^2 may be formed with a plain covering of chamois leather or brushes for cleaning the handles of the spoons. While the same end of the upper roller h^1 would preferably be mounted with a hair brush h^3 to clean large sizes of spoons.

For cleaning, blacking and polishing boots and shoes I remove the upper spindle d^1 of the before mentioned two spindles of the polishing rollers, as also the central bracket or standard D^1 carrying its inner end, but retain the lower spindle d and its inner end carrying bracket D^{11}, which was enclosed under the portable standard bracket D^1, and make this lower bracket D^{11} also carry the end of another spindle I a little below and at the one side and behind the centre of the said first

lower spindle d, the other end of this spindle being carried in a screw centre I^1, in the same standard a^{11} which carries the screw or bush centre a^{111} of the inner extension of the first main central shaft b^1. This central spindle b^1 at its inner end carries a grooved pulley I^2, which by an open band I^{11} passed over a grooved pulley I^3 on this inner lower spindle I, actuates it in the same direction as the first motion spindle b^1 and these pulleys may be formed fast and loose. On the upper central spindle b^1 as shown in detached sectional side elevation and end view in Figures 8 and 9 on Sheet 2, I mount a long circular brush J with long soft hair or other material J^1, in the line of the first lower spindle d, and near the other end with shorter stiff hair J^2, which I use for cleaning the dirt off the boots, and the other end with the soft hair J^1 I use for polishing the surface of the boots, along with a similar brush J^{11} mounted portably on the first or lowest spindle d nearest the knife cleaning machine, the same as the brush J^1 on the upper central spindle b^1, these two polishing brushes rotating in opposite directions, but not quite touching each other by a cross or twisted band $d^\times$, shown dotted-in in Figure 4, passed over the pulleys b^2, d^3, on their spindles b, d, the boots being turned and held by hand over either or both of these brushes as shown dotted in Figure 9; and for polishing the hollows and corners of boots, a narrow central brush with long hair J^3 is mounted between the brushes J^1, J^2, of the barrel J as shown particularly in Figure 8. For blacking the surface of the boots after the dirt has been cleaned off and before polishing, I have a portable cylindrical blacking brush i of bristles or cloth as shown in detached sectional elevation in Figure 10 Sheet 2, mounted on the outer lower spindle I, over a segmental portable tray or trough i^1 containing liquid or moist blacking in a drawer K, shown in sectional end view and plan detached in Figures 11 and 12 Sheet 2, under the table plate A^2, in which trough i^1 is fitted a serving brush or roller i^{11} preferably covered with woollen cloth and fitted in a frame i^2 raised by a lever i^3 in front of the drawer K, to press against the revolving blacking brush i, so that this brush takes up and puts a little blacking on the surface of the boot without sprinkling it about.

For polishing silver plate and other articles I place a fine dry brush or a woollen cloth brush j^{11} formed in radial layers on edge on a spindle and lever frame j^2, j^3, analogous to that for the blacking mounted in a portable tray j^1 and remove the blackening tray i^1 from the front outer end of the drawer K and insert this segmental tray j^1 containing rouge or other cleaning or polishing powder or material and raise this by the lever j^3 up to the dry polishing brush j, preferably formed of radial layers of chamois leather or woollen cloth, set on edge mounted on the spindle I as seen in Figures 1 and 2, so that it takes up the polishing powder also without sprinkling it about, and polishes the spoons or plate with the top and front surface of the brush. The other end K^1 of this drawer K may have a separate division or divisions to contain knives, forks, and spoons, and the two sides of the frame below the table plate A^2 may be boxed in as a case or press as shown at A^3 Figure 1, with either drawers or shelves for containing the several cleaning and polishing rollers, and articles to be cleaned; and be enclosed by a door, which is made to open out on hinges at top and bottom at A^4 and when open slide in transverse grooves on the outer end of the case frame out of the way. As shown in edge and side views in Figure 13, a portable wheel F carrying a disc of chamois leather or a brush at F^1, may be mounted on the clutch part d^{111} of the spindle d^1 and secured by a pinching screw, for the purpose of cleaning large surfaces of platework or similar purposes.

When the machine is to be driven by hand, I mount a hand spindle or stud c^{111} in the journal bearing bracket supported on the first or right hand headstock a of the machine, with a hinged crank handle c^4 on the outside end, or on a large spur wheel c^3 on the inner end and gear this into a small spur pinion c^2 mounted loose on the inner end of the main central driving spindle b, and on the inner face of this spur pinion c^2, I mount a radial arm with a screw pin and wheel c^{11} on it, on which I screw out a hollow screw stem to enter a hole or recess in the before

mentioned hand clutch wheel c, which drives the central shaft b, and also the hollow shaft b^4 when the hand clutch wheel c is put into gear. But it is to be understood that where motive power is available the upper first motive shaft b may be driven by a band and pulley from any convenient prime moving shaft, instead of from the driving or fly-wheel T^3 of the crank treadle motive shaft T^{11} hereinbefore described. The connecting rod T^1 between the foot-treadle T, and its crank shaft T^{11}, has its upper and lower ends fitted with brass cap wood block bearings adjusted by pinching screws at top and sides, so as to have these connections always perfectly tight.

Referring to Figures 14 to 17 on Sheet 2, these show a modified arrangement of the "furbator" or knife cleaner box C, from that shown in Figures 1 to 3, and in which the box C is made portable to contain a number of wood cleaning discs B, with their radial brushes B^{11} and intermediate polishing segments, a large segment B^{111} being made of layers of buff leather, and the smaller segments B^3 formed of india-rubber, or of layers of buff leather placed on edge. These polishing discs B are mounted on a crank shaft B^4 for being coupled to the first motion shaft b between the headstocks a^1, a^{11}, instead of the shaft b^1 in Figure 1, a spiral spring B^5 pressing the discs B towards each other to clean the knives k inserted in U shaped holders C^1 in a reciprocating frame k^1 actuated by connecting rods k^{11} from cranks on the shaft B^4, and connected to studs k^{111} on the frame k^1, reciprocating in slide guides k^2 in the sides of the box C, the handles of the knives k being gripped between a layer of rubber k^3 on the upper surface of the reciprocating frame k^1 and two bars or rollers covered with rubber k^4, k^5, the latter of which slides out of the way in the grooved end brackets k^6 of the reciprocating frame k^1, shown detached in Figure 17, for the insertion and removal of the knives k in their U or grooved shaped holders C^1, through the open upper front end C^3 of the box C, the rubber covered bar k^5 being secured by hand pinching screws at k^7 to hold the knives firm while being cleaned as shown particularly in Figure 16. In this arrangement the spindle b is driven by a crank handle C^4 fitted on it beyond the bracket a^1, or by the band T^2 passed over the pulley b^{11} from the driving fly wheel pulley T^3, of the treadle mechanism.

Cleaning powder is introduced into the chambers B^6 of the discs B, and falls through the orifices B^7 on to the surfaces B^{111}, B^3, on which the knives are cleaned. The reciprocating action of the frame k^1 cleans the knives k of whatever length they may be, more regularly, and especially the points of these.

This arrangement of knife cleaning machine shown in Figures 14 to 17 may be used for cleaning the knives alone as shown; or it may be substituted for the furbator C in the machine shown in Figures 1 to 4, and used in combination with the brushing and cleaning mechanism of that machine.

In the small portable arrangement of machine shown in Figure 18 in addition to the arrangement of furbator C shown in Figures 14 to 17, being used mounted on a central spindle B^4 carried on end standards a^1, a^{11}; a sleeve of buff leather e^1 formed with a series of grooves is shown as mounted on this spindle B^4 for cleaning the prongs of forks, while a disc e^{11} of chamois leather set on edge is mounted at the opposite end of the spindle B^4 for cleaning the ornamental parts of the forks or plate; and a small disc E of buff leather or emery is mounted on the spindle B^4 for sharpening the knives k. The spindle B^4 is shown as turned by crank handle c^4.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is.—

First. The construction or general arrangement and combination of the parts of a machine, for cleaning and sharpening knives and with interchangeable spindles and brushes for cleaning and polishing forks, spoons, plate, boots and shoes and like purposes, substantially as herein described in reference to and shown in the accompanying drawings.

Second. The constructing of a cleaning and polishing machine for the purposes stated, with interchangeable rotating spindles and brushes, discs or equivalent cleaning surfaces and their securing fittings, substantially as herein described in reference to and shown in the accompanying drawings.

Third. The constructing of a cleaning and polishing machine for the purposes stated, with cleaning or polishing discs or brushes formed of projecting layers of chamois leather, cloth, or equivalent material, set radially on edge on rotating interchangeable spindles, substantially as herein described in reference to and shown in the accompanying drawings.

Fourth. The constructing of a cleaning and polishing machine for the purposes stated, with cleaning and polishing brushes in combination with blacking, rouge, powder, or equivalent boxes and applying brushes or equivalent organs operated by lever fittings, substantially as herein described in reference to and shown in the accompanying drawings.

Fifth. The constructing of a machine or mechanism for cleaning knives with segmental cleaning discs, radial brushes, powder supplying chambers, and reciprocating knife carrying frame and holders, substantially as herein described in reference to and shown in Figures 14 to 17 of the accompanying drawings.

Sixth. The construction and arrangement of a portable knife, and fork, or plate cleaning and polishing machine, substantially as described in reference to Figure 18 of the accompanying drawings.

Dated the 20th July 1892.

W. R. M. THOMSON & Co.,
96, Buchanan Street, Glasgow, Agents.

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